

USER MANUAL

MODEL 2110 CopperLink Ethernet Booster



This is a Class A device and is intended for use in a light industrial environment. It is not intended nor approved for use in an industrial or residential environment.



Part# 07M2110-UM
Rev. A
Revised 12/29/08

SALES OFFICE
(301) 975-1000
TECHNICAL SUPPORT
(301) 975-1007

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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2110 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of the shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

Note Conformity documents of all Patton products can be viewed online at www.patton.com under the appropriate product page.

1.1 COMPLIANCE

EMC Compliance:

- FCC Part 15, Class A
- EN55022, Class A
- EN55024

Safety Compliance:

- UL60950-1/CSA C22.2 No. 60950-1
- IEC/EN 60950-1
- AS/NZS 60950-1

PSTN Compliance:

Note This device is not intended nor approved for connection to the PSTN.

1.2 RADIO AND TV INTERFERENCE (FCC PART 15)

This equipment generates and uses radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the equipment causes interference to radio or television reception, which can be determined by disconnecting the cables, try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna, and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.3 CE DECLARATION OF CONFORMITY

We certify that the apparatus described above conforms to the requirements of Council Directive 2004/108/EC on the approximation of the laws of the member states relating to electromagnetic compatibility; and Council Directive 2006/95/EC on the approximation of the laws of the member states relating to electrical equipment designed for use within certain voltage limits.

The safety advice in the documentation accompanying this product shall be obeyed. The conformity to the above directive is indicated by the CE sign on the device.

1.4 AUTHORIZED EUROPEAN REPRESENTATIVE

D R M Green
European Compliance Services Limited.
Avalon House, Marcham Road
Abingdon,
Oxon OX14 1UD, UK

1.5 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Services at:

- Tel: **+1 (301) 975-1007**
- Email: **support@patton.com**
- URL: **http://www.patton.com**

Note Packages received without an RMA number will not be accepted.

1.6 SAFETY WHEN WORKING WITH ELECTRICITY



- This device contains no user serviceable parts. The equipment shall be returned to Patton Electronics for repairs, or repaired by qualified service personnel.

- For units with an external power adapter, the adapter shall be a listed Limited Power Source. The power cable used shall meet all applicable standards for the country in which it is to be installed, and shall be connected to a wall outlet which has earth ground.

- Hazardous network voltages are present in WAN ports regardless of whether power to the unit is ON or OFF. To avoid electric shock, use caution when near WAN ports. When detaching the cables, detach the end away from the device first.

- Do not work on the system or connect or disconnect cables during periods of lightning activity.



In accordance with the requirements of council directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE), ensure that at end-of-life you separate this product from other waste and scrap and deliver to the WEEE collection system in your country for recycling.

2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for one year for parts and labor. If any questions or problems arise during installation or use of this product, contact Patton Electronics Technical Support at +1 (301) 975-1007.

2.1 FEATURES

- PoE Ethernet Booster - No configuration necessary
- Plug 'n Play
- Auto-MDIX Ethernet
- 10/100, Full/Half Duplex Ethernet
- Extends network connections and delivers power to an end device
- LED indicators for Power, Input Link/Activity and PoE Link
- Made in the USA

2.2 DESCRIPTION

The Patton Electronics Model 2110 is a Power-over-Ethernet (PoE), IEEE 802.3af Ethernet booster. Standard Ethernet is limited to 100 meter lengths over CAT5 twisted pair cable. Multiple 2110s overcome this distance while delivering power to an end device without the use of many wall adapters at each unit location. The 2110 exists in three versions:

- 2110/P – PoE Ethernet Booster
- 2110/PSE – PoE Injector/ Ethernet Booster
- 2110/EUI – Ethernet Booster without PoE

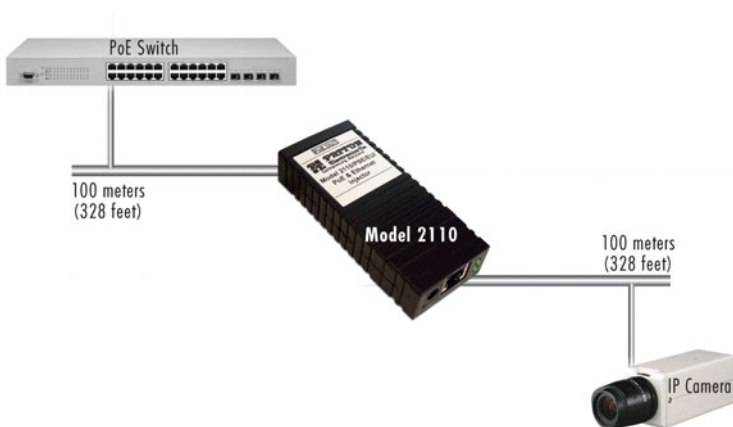


Figure 1. Typical application

When using a Model 2110, in conjunction with a PoE Switch, the user extends the 802.3af PoE and 10/100 Ethernet an additional 100 meters (328ft). POE-enabled IP Cameras can be placed 200 feet away from the Ethernet switch and can be powered up via PoE by the 2110. (See Table 2 on page 11 for power and distance specifications).

3.0 INSTALLATION



The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

To install the 2110 PoE Booster, do the following:

1. Connect the Ethernet interface (refer to section 3.1, “Connecting the 10/100Base-T Ethernet Interface” on page 8).
2. EUI Models only: Connect the power plug (refer to section 3.2, “Connecting Power (EUI Models)” on page 9)..

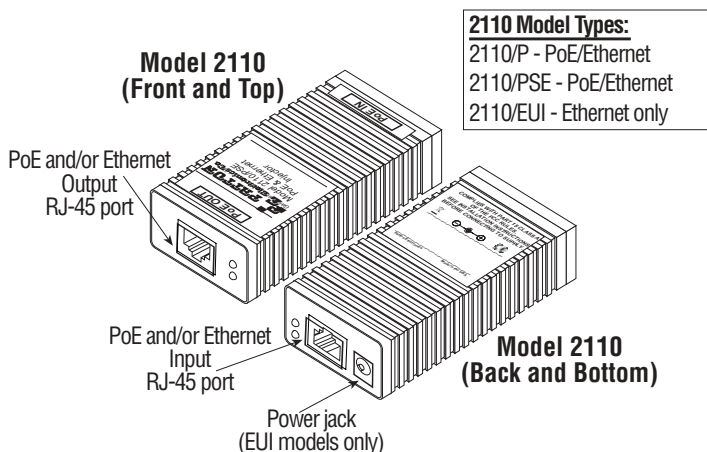


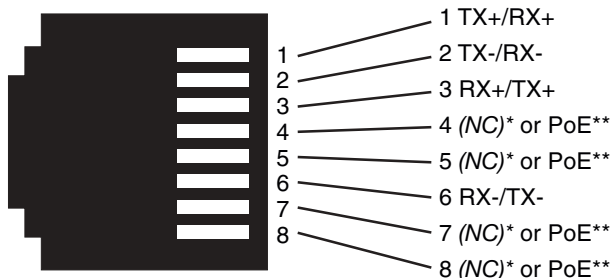
Figure 2. Model diagram (2110/PSE model shown)

3.1 CONNECTING THE 10/100BASE-T ETHERNET INTERFACE



The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

The shielded RJ-45 port labeled *Ethernet* is the Auto-MDIX10/100Base-T interface. This port is designed to connect directly to a 10/100Base-T network. Figure 3 shows the signal/pin relationships on this interface. You may connect this port to a switch, IP camera, hub or PC using a straight through or crossover cable that is up to 328 ft long.



* = (NC) applies to /EUI model

** = PoE applies to /PSE models only

Figure 3. Model 2110 10/100Base-T RJ-45 Connector Pinout.

3.2 CONNECTING POWER (EUI MODELS)



The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

The Model 2110 does not have a power switch, so it powers up as soon as it is plugged in.

An external AC or DC power supply is available separately. This connection is made via the barrel jack on the bottom panel of the Model 2110. No configuration is necessary for the power supply (See Appendix B for domestic and international power supply and cord options). DC power (supplied via the power supply jack to the 2110) must meet the following requirements; DC power supplied must be regulated +12VDC $\pm 5\%$, 1.0A minimum. Center pin is +12V. The barrel type plug has a 2.5/5.5/10mm I.D./O.D./Shaft Length dimensions.

4.0 OPERATION

Once the Model 2110 is properly installed, it should operate transparently. No user settings required.

4.1 POWER UP

Models 2110/PSE and 2110/EUI: Before applying power to the Model 2110, please review section 3.2, "Connecting Power (EUI Models)" on page 9 to verify that the unit is connected to the appropriate power source.

4.2 LED STATUS MONITORS

The Model 2110 features two top panel LEDs that monitor PoE output and Ethernet activity, and two bottom panel LEDs that monitor power input and Ethernet activity. Figure shows the locations of each LED. Table 1 describes the LED functions.

Table 1: LED descriptions

LED		Description
PoE OUT (Top Panel)	PoE Link*	Indicates link with down-stream PoE device. (Not present on 2110/EUI)
	Link/Act	Indicates link and activity on output port.
Ethernet IN (Bottom Panel)	Power*	Indicates 2110 is receiving power from up-stream PoE device or power adapter.
	Link/Act	Indicates link and activity on input port.

* = applies to 2110/P and 2110/PSE models only

APPENDIX A

SPECIFICATIONS

A.1 ETHERNET CONNECTION

- Two Ethernet ports 10/100BaseTX; 802.3af
- Auto-Negotiating 10/100
- Supports Flow Control (IEEE803.X) for full duplex operation
- Supports back pressure for half duplex operation
- Store and forward
- Auto MDI-X
- 802.3af pass through

A.2 LED STATUS INDICATORS

- PoE/Power (Green): Glows solid when there is power to the unit
- Ethernet (Green): Flashes when passing traffic

Note See Table 1 on page 10 for LED details.

A.3 POWER

- Rated Voltage: 12VDC (/EUI model) or 57VDC (/PSE model)
- Rated Current: 700mA

A.4 OPERATING TEMPERATURE

- 0-50°C

A.5 OPERATING HUMIDITY

Up to 90% non-condensing

A.6 POWER VS. DISTANCE

Table 2: Model 2110 Series Power vs. Distance

Device Power (MAX)	13W (CLASS 3/0)	6.5W (CLASS 2)	3.84W (CLASS 1)	0W (NO PoE LOAD)
Range for PoE Switch	N/A	300 (m)	400 (m)	500 (m)
Range for 57V (PSE model)	400 (m)	500 (m)	600 (m)	800 (m)

APPENDIX B
MODEL 2110 SERIES FACTORY
REPLACEMENT PARTS AND ACCESSORIES

Patton Model #	Description
Base Models	
2110/P	10/100 Ethernet Booster; 802.3af; 0-50°C
2110/PSE	10/100 Ethernet Booster/PoE Injector; 802.3af; 0-50°C
2110/EUI	10/100 Ethernet Booster; External 100-240VAC; 0-50°C
07M2110-UM	User Manual
Power Supplies	
08055-2110-I	10/100 Ethernet Injector; External 100-240VAC; 0-50°C
080511-06	12V Adapter, 1.25A
Power Cords*	
0805US	American Power Cord
0805EUR	European Power Cord CEE 7
0805UK	United Kingdom Power Cord
0805AUS	Australian Power Cord
0805DEN	Denmark Power Cord
0805FR	France/Belgium Power Cord
0805IN	India Power Cord
0805IS	Israel Power Cord
0805JAP	Japan Power Cord
0805SW	Switzerland Power Cord

*Only required with optional UI power supply (08055DCUI)

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